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ABSTRACT

Explicit classroom correction of the second language learner's errors is unnecessary, because errors are indications of the learner's current hypothesis, which may not necessarily match the target rule, or they may indicate that no hypothesis has yet been formulated by the learner. Explicit correction may be harmful because students can be pushed beyond their competence to perform or may be forced into using a cognitive system not equipped for language acquisition. Some research has shown that students want their errors to be corrected, but this may be a reflection of a general anxiety about learning. Indirect correction may be effective when students have time to reflect or monitor, as with written assignments, but it will be effective only if the student's rule is critical or is very simple and has been learned through his problem-solving mechanism. Many teachers feel that error correction is an impetus for improvement, but the learner's innate language acquisition device will slowly guide him to the correct hypothesis. (MSE)

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"ERRORS IN THE CLASSROOM: WHY WE DON'T NEED TO CORRECT THEM"

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Paper delivered at

PNCFL/BCATML/APPIPC/CULTA

Conference, May 9, Vancouver

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"Errors in the Classroom: Why We Don't Need to Correct Them"

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In the following talk I will not advocate any one method, but rather attempt to clarify the significance of errors, based on psycholinguistics research and theoretical linguistics. I will make two claims and offer support for each claim. First, explicit correct of errors is unnecessary. Errors are indications of the learner's current hypothesis, which does not necessarily match the target rule, or are indications that no hypothesis has as yet been formulated by the learner. Second, explicit correction may be harmful because students can be pushed beyond their competence to perform and thus cannot progress at their own level or students may be forced into using a cognitive system not equipped for language acquisition.

Before considering each claim, we must address the basic question, what is language? Due to developments in theoretical linguistics in the last thirty years, we are much closer to finding the answer. Additionally, there has been considerable empirical evidence, including evidence from cerebral abnormalities, confirmed lately by such technological advancements as positron emission tomography (PET) scans. This extra-linguistic evidence can lend support to theory and, under favorable circumstances, provide impetus for future directions in theoretical linguistics.

There is still much more to be investigated about how humans acquire first and second languages because so many factors are involved, many more factors than come within the narrow scope of

this paper.

How is human language acquired? It seems very clear that an explanation dependent solely on imitation and reinforcement of response, where the learner's mind is considered a blank slate, will not suffice. Acquisition does involve some imitation and reinforcement, but children do not acquire their first language by simply reproducing the sentences they are confronted with. Rather, input is processed in a highly complex and systematic way by the child. Cross-linguistic studies in a variety of languages such as Hungarian, Turkish, Russian as well as the more commonly studied languages such as English and German have shown commonalities, or universals, in the first language acquisition of children.[1] That is, children learning any langauge seem to process linguistic data in much the same way. Superficially, errors in the child's language seem to illustrate the child's failure to grasp the grammar of his/her language, however, upon closer examination it becomes clear that these errors reflect the child's hypotheses about that language.

Based on the preceding discussion, we might claim that humans are equipped with an innate cognitive system specifically geared to acquiring language. This system has been termed (by Noam Chomsky) the language acquisition device or LAD. It does not represent a physical device located somewhere in the brain, but rather refers to this cognitive system as an abstraction, to be further defined not by theoretical linguists alone, but also by neurolinguists and applied linguists. The LAD directs the learner to formulate certain types of hypotheses about linguistic data, while never entertaining other types of hypotheses.

An example of the type of hypotheses the child formulates can be illustrated by reference to the structure dependency of language. That is, the rules of human languages must make reference to the internal structure of language. Yes/No question formation in English follows the basic rule stated as such: "Move the auxiliary verb to the left of the entire subject noun phrase". This rule accounts for both the following questions:

Is [the boy]$_{NP}$ ___ your friend?

Is [[the boy]$_{NP}$ who came to your house last night]$_{NP}$ ___ your friend?

Hypotheses that do not make reference to the internal structure of these sentences will fail to produce the target form.Children's errors do not reflect these sorts of hypotheses, as their hypotheses take into account the internal structure of language from the start of acquisition. Children also have an innate knowledge of the different categories of language. While children may use prepositions as verbs as in: "Mommy up me!" (Mommy pick me up!), they do not confuse articles and verbs, for example, or attach articles to verbs. This knowledge of categories is not learned, rather the child's brain is equipped to recognize such things in linguistic input.

That this system is specialized for language rather than being a general cognitive system is supported by extra-linguistic evidence from aphasics and retardates. There are aphasics who lose their language, but not other cognitive systems - we have cases in the literature where speech is lost, but not the ability to conduct symphonies or to solve complex mathematical problems. Retardates, who are incapable of abstract problem solving, are however able to use highly abstract language, such as the second question given above. Additionally, the fact that children, who have learned most of this highly abstract code we call language by the time they are five or six, are at this age

incapable of other abstract problem solving. Six year olds cannot, for example, perform algebraic equations or diagram the sentences they can so easily utter.

Other support for the innateness of language comes from the acquisition of phonology. An infant of four months is played certain consonants, the alternations of which stimulate increased sucking when the infant perceives a difference. Sucking slows down once the infant becomes habituated to a non-changing consonant. Infants bewteen the ages of four and six months were shown to be able to distinguish between voiced and voiceless stops such as p/b.[2] This is remarkable when one considers that Arabic babies, who hear only /b/ since Arabic has no /p/, are still able to hear both consonants as distinct, while their parents hear /p/ as a variation of /b/ and do not distinguish it.

How does the child's acquisition proceed developmentally? Briefly, the child advances from a one-word stage, where one word stands for one sentence or idea, to a two-word stage, to a telegraphic stage, or multi-word stage. At all three stages, utterances consist primarily of content words; that is, children use nouns, verbs, adjectives and adverbs almost exclusively. "Want cookie " and "Mommy chair " are typical of the two-word stage. There is a marked absense of articles, most prepositions and inflections. Thus, interpretation is highly dependent on context and intonation. "Mommy chair" can mean: that's mommy's chair, those are mommy's chairs, mommy's in the chair, is that mommy's chair, bring me mommy's chair, mommy go sit in the chair.

There is for every language a progression in acquisition from the simple to the complex, and a developmental order which every child follows. Children may skip steps but not reverse steps. Einstein was purported to have not spoken at all until the age of four, when he

spoke in complete sentences, however it is certain that he did not acquire the passive verb before he had acquired the active verb.

Now, let us examine how the study of first language acquisition can be helpful in examining the processes involved in second language acquisition.

First, is it reasonable to claim that the LAD is still available for second language learners, particularly those who have passed what is termed the "critical period"? The critical period hypothesis states that all language development occurs between the ages of two and twelve, during which time the brain is slowly lateralizing for language on the dominant hemisphere (left hemisphere for right-handed persons). According to this hypothesis, very little, if any, acquisition is possible after the onset of puberty. Thus, this would account for the ease that children have acquiring a second language and the difficulty post-puberty learners have, when both are, for example, in immersion environments.

The critical period hypothesis is supported by one very important piece of evidence from first language acquisition. A girl named Genie was found at age thirteen, possessing absolutely no language.[3] She was subsequently studied during her acquisition of English and did progress through all the developmental stages to the telegraphic stage and beyond. However, her vocabulary was always much more extensive than was usual for each stage and, although she was right-handed, her language was not lateralized on her left hemisphere, but rather on her right hemisphere. Her acquisition eventually slowed and she was later taken into custody by her mother and no longer under study. She was not found to be mentally deficient, but it seems her LAD had atrophied. Cases in the literature of other children having no language, but younger than thirteen show that the LAD is still available pre-puberty

Do these findings from first language acquisition definitively indicate that post-puberty learners of a second language can no longer make use of their once-active LAD? Scovel (1969)[4] claimed that the post-puberty atrophy of the LAD was the cause of the inability of older learners to acquire the second language phonology perfectly. However, in his 1972 dissertation, Krashen[5] reviewed the literature on hemispheric damage and language acquisition and showed much evidence that lateralization is largely completed by age five. At present there is no conclusive biological evidence that the completion of lateralization and the decline of language acquisition ability are causally related. That is, we have no evidence that the LAD atrophies for learners who have already acquired their first language.

There have been numerous studies in second language acquisition since the 1970s showing that adults and children commit the same types of errors and follow developmental sequences similar to each other and to those of children acquiring their first language. For example, all three groups follow very similar developmental sequences in the acquisition of negation in English. And, some strategies which were heretofore only seen as post-puberty strategies, such as transfer, have lately been found to play a more important role for younger learners and a less important role for older learners.

Age differences, of course, exist. Yet, interestingly enough, older learners are initially faster, particularly in the acquisition of vocabulary and morphology.[6] One study showed that phonological acquisition was faster for adolescents and adults than for younger learners.[7] However, ultimate attainment, if acquisition is begun after puberty, will not normally be reached. There are many examples of adults who acquire most of their second language but retain a heavy accent, indicating that they have not completely

mastered the phonology. Joseph Conrad and Henry Kissinger are two well known examples of this sort.

If there is no biological basis for age differences, what then might be the cause? Several possibilities exist. The first involves differences in affective variables as they apply to children and adults. Children are typically more motivated to fit into their peer group, have a lower level of anxiety about language acquisition, are more likely to be risk takers and are allowed by society to play nonsensical language games and talk to themselves. Additionally, children hear more input directed at them that refers to concrete things in the world around them. There are also cognitive differences, which may be the result of biological factors unrelated to lateralization of function for language. Adults are more mature cognitively than children, possessing better short term memory, for example. This accounts for the fact that the adult second language learner does not start at the one or two-word stage, but rather at the telegraphic stage or higher.

Another very important cognitive difference centers around the child's entry into the stage of formal operations between the ages of eleven and fifteen. As defined by Piaget, this is the adolescent's ability to formulate rules rather than ad hoc solutions, to have ideas about ideas, to isolate and manipulate multiple variables and to undertake complex abstract problem solving in general. Note, we have stated that it is the LAD that enables the young child to acquire the very abstract rules of language by age five or six, but that it is not until puberty that the child becomes capable of manipulating other types of highly abstract data in a manner similar to that required in language acquisition. Note that neither the ability to acquire a first language nor entry into the stage of formal operations implies that the child is able to make explicit at a conscious level the processes of such mental operations. Some learners can do this, within the realm

of mathematics or language, and these are often individuals who later become the excellent teachers or researchers in these disciplines.

Although there seems to be no biological evidence for the diminishing ability to acquire a second language completely, there may be a link between this and the learner's entry into the stage of formal operations. It is not clear at present what the biological evidence might be for entry into formal operations, however, there is some research that suggests adults in non-urban, non-western cultures do not enter this stage, that it is a phenomenon more of nuture than nature.[8]

At any rate, the co-occurence of decline of language ability and entry into the stage of formal operations should not be regarded as a coincidence. Felix (1981) describes the problem as cognitive structures in competition with each other.[9] That is, the learner unconsciously interprets linguistic input as input for the formal operations problem solver. Normally the LAD should process linguistic data, but because the linguistic data can be classified as data representing an abstract system, they inadvertently are processed by the formal operations problem solver. Children, who have not yet entered into the stage of formal operations, have no option but to process linguistic data through their LAD. Adults, however, do have that option, albeit mostly unconsciously. This problem solver is not unsuccessful in many cases, but because the problem solver is not geared to processing linguistic input the way the LAD is, it ultimately fails. If we consider the parts of grammar that can be taught and those that are never taught because they are too complex, it becomes clearer what the problem solver is and is not able to tackle in language acquisition. Phonology is particularly resistant to processing by the problem solver. Pronunciation of individual

segments and discrimination of phonemes using minimal pair drills can be successful, but at the sentence level, when the speaker must simultaneously attend to word stress, sentence stress, intonation and rules that affect segments, the problem solver is inadequate.

Methods of language instruction which rely heavily on the conscious application of rules will inevitably cause the learner to employ the problem solver more and the LAD less, resulting in a class of future linguists. Second language teachers need to trust the learner's LAD to process language and should use methods that allow the learner to "get his/her feet wet" in the language.

Teaching conscious rules poses a further problem. Reber (1976)[10] showed in an experiment with general problem solving that subjects performed worse when a conscious rule was the focus of the task than when they were allowed to operate at an intuitive level. If it is detrimental to students' performance on general cognitive tasks, where the formal operations problem solver is employed, and conscious rules are stressed, then students of a second language fare even worse because attention to explicit language rules harms their performance and blocks access to the LAD.

Is there evidence that learners in the classroom, as opposed to learners in immersion environments, actually make use of their LAD at all? Felix (1981)[11] compared naturalistic acquisition with classroom acquisition by observing German high school students learning English by the audio-lingual method. His findings showed that the learners followed a developmental sequence similar to that previously determined for naturalistic acquisition of English. Felix also noted that learners were constantly forced to produce structures they were not yet ready for developmentally, which resulted in strange errors indicative of the fact that the learners had reached no

hypothesis at all. He considered such errors the result of having to deal with a difficult situation in which the students' primary goal was to produce something to please the teacher.

If learners are allowed to progress developmentally through their own internal syllabi, without consciously applying rules, yet with the freedom to constantly reach and discard various hypotheses about the linguistic input surrounding them, they will inevitably commit errors. These errors, we might conclude, will be immune to correction even when the learner is able to state the rule correctly and apply the rule successfully on an examination. In spontaneous conversation, if the rule has not yet been acquired developmentally, the learner will produce errors regardless of whether the rule has been mastered formally.

There are further problems with error correction. How do we know when an error has, in fact, occurred? Wagner-Gough (1975)[12] collected data from the English acquisition of an Iranian boy who used the present progressive for all forms of the verb, including the past tense and imperative. In this case, it is unclear if this subject's apparently correct usage of the present progressive for present progressive actually was correct. To determine this, we must constantly monitor the learner's intentions.

Furthermore, how do we know if the learner understands what it is we are correcting for when we correct errors? Learners frequently interpret corrections of grammatical errors as corrections of content, much the same as children have been shown to do.[13] Parents of children acquiring their first language usually correct for the truth value of their children's statements and much less frequently correct grammar through expansion or restatement of what the child has actually said. The irregular past seems to be subject to much parental

correction. Children begin at stage one with the grammatical irregular past forms. Then, the child realizes the rule in English which adds -ed to a verb stem to form the past tense. However, the child's hypothesis is an over-generalization that extends to all verbs, both regular and irregular. Correction usually procedes with the parent eliciting a grammatical response from the children, but only in isolation. In spontaneous speech, the child reverts back to the over-generalized form, such as goed or wented.

Is error correction, therefore, a waste of parents' and teachers' time? There is a convincing body of research revealing that most error correction in second language acquisition is not helpful. Krashen and Terrell (1983) warn that error correction is likely to have a negative effect on spontaneous communication because it raises the level of anxiety and thus makes it more difficult for the learner to attend to linguistic input.[14] In a review of the research carried out on error correction up to that point, Hendrickson (1978) also offers no concrete evidence that error correction is helpful, although he does suggest that errors which stigmatize the learner or cause the learner to be unintelligible should be corrected.[15]

In examining how second language learners are corrected by their teachers, Holley and King (1971) video-taped classroom interactions and discovered teachers interrupt students and complete students' sentences for them in the course of correction.[16] This type of correction is exactly the sort that Krashen and Terrell (above) cite as causing anxiety and a drop in the learner's receptivity to linguistic input.

According to Klein (1986), the learner may realize his/her rules are wrong and even be able to identify incorrect structures, but may be unable to use the correct rule. This may stem from the fact that

the learner does not know the correct rule, or may only know part of the correct rule, or may not feel fully confident in using the rule yet.[17]

Klein addresses the problem of why errors are generally resistent to correction, but sometimes seem quite responsive to correction. The learner, as we have seen, is constantly revising his/her hypotheses about the target language, using the increasingly comprehensible input to compare his/her hypotheses to what the perceived target language rule is. If a particular hypothesis is undergoing revision at a particular time, the rule is "critical", that is, the rule is sensitive to feedback, some of which may come in the form of explicit correction. However, if the rule is not critical, then the learner will not be ready to revise the hypothesis and to correct the error in spontaneous speech. It is important to note that this is a wholly unconscious process for most learners.

What is, then, the role of the teacher, if it is not to correct errors? The language classroom can provide input at the learner's level of increasing comprehension[18], as well as provide a safe haven in which to test hypotheses.

Should errors never be corrected? Students report they want to be corrected [19], although this is perhaps a reflection of students' general anxiety regarding learning. Correction does seem to be marginally effective when students have time to reflect, or to monitor, for example when they are given written assignments.[20] In such cases, indirect correction might be most effective, allowing the student to continue to operate at an unconscious level. This will not be effective unless the student's rule is critical, or the rule is one which is very simple and has therefore been learned through the problem solver.

Many teachers, as well as their students, feel that error correction is the impetus to improvement. Children, who receive minimal grammatical correction, if any at all, always progress past the point where rudimentary communication needs are met. Human beings appear to be innately programmed to acquire languages, and without any convincing biological or empirical evidence to the contrary, we cannot claim that post-puberty learners do not also possess this innate ability for acquiring a second language. Thus, error correction is not necessary because the learner's innate language acquisition device will slowly guide him/her to the correct hypotheses. Until that point, errors are only correctable when hypotheses are at a critical point. Error correction is detrimental as well,in that it raises the learner's anxiety level, and may result in greater use of the formal operations problem solver to acquire language, a task for which it is ultimately inadequate.

Notes

[1]See Dan I. Slobin, "Universals of grammatical development in children," Working Paper No. 22 (Berkeley: 1969).

[2]See P.D. Eimas, E.R. Siqueland, P. Jusczyk and J. Vigorito, "Speech perception in infants," Science (1971).

[3]Genie had suffered from the effects of extreme isolation and being mistreated, however she was tested and found to have normal intelligence. For an account of her language acquisition, see V.A. Fromkin, S. Krashen, S. Curtiss, D. Rigler, M. Rigler, "The development of language in Genie: A case of language acquisition beyond the critical period," Brain and Language 1, (1974): 81-107.

[4]See Tom Scovel, "Foreign accents, language acquisition and cerebral dominance," Language Learning 19, (1969): 245-54.

[5]See the related article from Krashen's dissertation: Stephen Krashen, "Lateralization, language learning and the critical period - some new evidence," Language Learning 23, (1973): 63-74.

[6]See C. Snow and M. Hoefnagel-Hoehle, "Age difference in second language acquisition," in E. Hatch (ed.) Second Language Acquisition (Rowley: Newbury House, 1978): 333-54.

[7]See L. Olsen and S. Samuels, "The relationship between age and accuracy in foreign language production," in S. Krashen, R. Scarcella, M. Long, Child Adult Differences in Second Language Acquisition (Rowley: Newbury House, 1982): 29-53.

[8]For an interesting study of rural, uneducated people in the Soviet Union see A.R. Luria, Cognitive Development - It's Cultural and Social Foundations (Cambridge: Harvard University Press, 1976).

[9]See Sascha Felix, "Competing cognitive structures in second language acquisition," Paper presented at the first European/North American Workshop on Second Language Acquisition (Los Angeles, 1981).

[10]See A. Reber, "Implicit learning of synthetic languages," Journal of Experimental Psychology: Human Memory and Learning 2, (1976): 88-95.

[11]See Sascha Felix, "The effect of formal instruction on second language acquisition," Language Learning 31, (1981): 87-112.

[12]See J. Wagner-Gough, Comparative Studies in Second Language Learning, Master's Thesis, (University of California at Los Angeles, 1975).

[13]See J. de Villiers and P. deVilliers, Language Acquisition (Cambridge: Harvard University Press, 1978).

[14]See S. Krashen and T. Terrell, The Natural Approach - Language Acquisition in the Classroom (San Francisco: Alemany, 1983).

[15]See J. Hendrickson, "Error corrections in foreign language teaching: Recent theory, research and practice," Modern Language Journal 63, (1978): 381-92.

[16]See Freda Holley and Janet I. King, "Imitation and correction in foreign language learning," Modern Language Journal 55 (1971): 494-98.

[17]See Wolfgang Klein, Second Language Acquisition (New York: Cambridge University Press, 1986).

[18]See Stephen Krashen, Principles and Practice in Second Language Acquisition (Oxford: Pergamon Press, 1982).

[19]See R. Cathcart and J. Olson, "Teachers'and students' preference for correction of classroom conversation errors," in J. Fanselow and R. Crymes (eds.) On TESOL (Washington, D.C. TESOL, 1976): 41-53.

[20]See Stephen Krashen, "The monitor model of adult second language performance," in M. Burt, H. Dulay and M. Finocchiaro (eds.) Viewpoints on English as a Second Language (New York: Regents, 1977): 152-61.